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PUBLIC HEALTH REPORTS

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ILLINOIS COURSE FOR COMMUNITY NURSES.

The Illinois State Departments of Public Health and Public Welfare, in cooperation with the Illinois Tuberculosis Association and other State and local health and welfare agencies, have arranged a supplementary training course for public health nurses.

The course is open to graduate registered nurses from any State, and to social workers and others who have been engaged in welfare work and can show their fitness or adaptability. Applicants must agree to engage in public-service nursing in Illinois upon the completion of the course. They must be in good health and not less than 23 years of age. The class is limited to 15 members. There are no fees or charges, but the nurse must defray her traveling and living expenses while in training.

The course, covering a period of about 10 weeks, consists of didactic work and field work under supervision in various small communities in Illinois where efficient public health service nursing is being carried out. The general schedule is as follows:

1. Field work in small communities, three weeks.
2. Didactic instruction at Springfield, two weeks.
3. An inspection trip to the Lincoln State farm and colony for the feeble-minded, one day.
4. Personally conducted visit to the State School for the Blind, the School for the Deaf and Dumb, and the Hospital for the Insane at Jacksonville, three days.
5. Field work in smaller communities, three weeks.
6. General review covering a period of one week at Springfield, with visits to public health laboratories, jails, juvenile courts, child-welfare stations, sanatoria, etc.

CONTROL OF DISEASES IN ESTABLISHMENTS FOR THE MANUFACTURE AND LOADING OF HIGH EXPLOSIVES.

The following report was adopted at a conference between munition manufacturers and the Divisional Committee on Industrial Diseases, Poisons, and Explosives. The committee was from the section on

sanitation of the Welfare Committee of the Committee on Labor of the Advisory Commission, Council of National Defense.

This report is published by permission of Mr. Samuel Gompers, chairman of the Committee on Labor.

The report was adopted at a meeting in New York City, December 1, 1917. The manufacturers present—and they constituted the greater part of the industry—agreed without exception to adopt the rules and regulations in the report as the practice of their establishments.

The Divisional Committee on Industrial Diseases, Poisons, and Explosives was composed as follows:

Dr. W. G. HUDSON, Chairman.....	E. I. du Pont de Nemours Co., Wilmington; Del.
Dr. R. P. ALBAUGH.....	Columbus, Ohio.
Dr. GEORGE APFELBACH.....	Chicago, Ill.
Dr. LEWIS BOOKER.....	New Castle, Del.
Col. LEWIS T. BRYANT.....	Trenton, N. J.
Dr. ALICE HAMILTON.....	Hull House, Chicago.
	Bureau of Labor, Washington.
Dr. E. R. HAYHURST.....	College of Medicine, Columbus, Ohio.
Dr. F. D. PATTERSON.....	Chief of Division, Department of Labor and Industry, Harrisburg, Pa.
Dr. J. W. SCHERESCHEWSKY.....	Assistant Surgeon General, United States Public Health Service.
Dr. W. GILMAN THOMPSON.....	61 West Forty-ninth Street, New York City.
Dr. B. S. WARREN.....	Assistant Surgeon General, United States Public Health Service.

In all factories where nitration is carried on and in which poisonous nitro and amido compounds are manufactured or handled, the following general rules shall¹ apply in those departments where such processes are carried on.

1. Ventilation.

In any buildings where poisonous gases or vapors are produced in such amounts as to be deemed a menace to the safety or health of employees working therein, sufficient² ventilation for the health of the occupants shall be provided.

2. Prevention of Dust.

No undue accumulation of dust shall be permitted on workbenches or floor, or other surfaces within the workroom. All workers shall be cautioned that they shall take care in shovelling, scooping, etc., not to produce excessive dust. Grinding, sifting, screening, and packing dry compounds shall be done, as far as practicable under cover, and when this is not practicable, special protection for the workers shall be provided, or the dust shall be removed by exhaust at the point of origin.

¹The use of the word "shall" in these rules does not carry with it the implication that they are imposed by any authority. The adoption of the regulations has been agreed upon by representatives of the employers concerned in conference with the committee.

²A separate report upon "Ventilation" is being prepared.

Floors shall be smooth and easily cleaned, and shall be carefully swept by soft brooms, and where practicable, moist sweeping is recommended. Vacuum cleaning methods were carefully considered by the committee and such methods are recommended for use only in buildings where no explosives or substances that may explode are handled.

3. Drinking Water.

The drinking-water supply of industrial establishments shall conform, from a bacteriological standpoint, to the United States Treasury Department's regulations.

(a) The common drinking cup is prohibited.

(b) Ice used for cooling purposes shall be applied in such a manner that the ice itself will not come in contact with the drinking water, and the water from the melting ice shall not become mixed with the drinking water.

(c) Drinking water or faucets shall be of such design and construction as to obviate the direct application of the lips to the water outlet.

(d) Water receptacles shall be thoroughly cleansed weekly and then sterilized with steam or with boiling water.

(e) Employees engaged in the care and maintenance of drinking facilities shall be determined, by physical examination, to be free from communicable diseases.

4. Washing Facilities.

There shall be provided by the employer without expense to the employee 1 wash basin for every 5 persons up to 100 on a shift; 1 wash basin for every 8 persons between 100 and 500 on a shift and where there are over 500 persons on a shift, the wash basins shall be one for every 10 persons on a shift.

Or, there shall be 2 feet of trough¹ for every 5 persons up to 100 on a shift, 2 feet of trough for every 8 persons up to 500 on a shift, and where there are over 500 persons on a shift there shall be 2 feet of trough for every 10 persons. Where double-sided troughs are used, half the above trough space shall apply.

Where there are 90 persons or less on a shift, there shall be 1 shower for every 15 persons; 90 to 500 persons on a shift, there shall be 1 shower for every 20 persons; 500 to 1,000 persons on a shift there shall be 1 shower for every 25 persons; and when there are 1,000 to 5,000 persons on a shift there shall be one shower for every 30 persons.

There shall be provided hot and cold water, soap, and fabric or paper towels.

¹ It is recognized that where the trough is used, there should be flowing water and no stoppers. It is the part of wisdom to provide one faucet for every five persons. In practice it has been found that shower baths may be substituted in part for such faucets.

5. Change House or Locker Room Facilities.

Facilities for hanging and storing both working and street garments shall be provided so that they shall not come in contact with each other nor with the garments of others.

6. Eating Facilities.

No food shall be kept or eaten in a room in which the dust or the fume of poisonous nitro and amido compounds are present. To the extent to which proper facilities for eating meals are not available within one-half mile of the works, the employers shall provide such facilities without cost to the workmen. No process worker shall be allowed to go out for lunch or to eat his or her lunch on the premises without first washing his or her hands and, if necessary, washing his or her face.

7. Clothing.

The employer shall pay 50 per cent of the cost of purchase, and maintain in reasonably good condition for all workers in poisonous nitro and amido compounds, suitable overalls or other working clothes, which are to be washed or renewed at least once a week.

Process workers in poisonous nitro or amido compounds shall be advised in a language which they can understand that they will not be permitted to wear their working clothing home.

8. Gloves.

The employer shall pay 50 per cent of the cost of purchase and maintain in reasonably good condition for all workers in poisonous nitro or amido compounds gloves of rubber, leather, or canvas.¹

9. Respirators.

Respirators shall be provided by the occupier for emergency use in cases of unusual contamination of the air with dust. It is not recommended that they be worn continuously, since there is evidence to show that they can not hold back gases unless so thick that respiration would be impeded, while in the case of poisonous dust the edge of the respirator by pressing on the face makes a warm, moist surface where dust is collected. The provision of pads of clean cheesecloth is preferable.

10. Foot Protection.

The employer shall pay 50 per cent of the cost of purchase and maintain in reasonably good condition suitable shoes with non-

¹“* * * The use of gloves except for hot or rough work is discouraged, as workers can not keep the interior of gloves free from TNT, and a poultice of TNT on a hot hand is the ideal way to secure absorption.” (This footnote is taken from a paper read by Dr. W. J. O'Donovan, chief medical officer, Welfare and Health Section, ministry of munitions, at the meeting Apr. 12, 1918, of the section on Epidemiology and State Medicine of the Royal Society of Medicine, as reported in The Lancet, Apr. 27, 1918, p. 605, and is inserted here by the Editor Public Health Reports.)

absorbent soles for the use of process workers where liquid poisonous nitro or amido compounds are manufactured or handled.

11. Toilet Facilities.

1. **GENERAL PROVISION:** Toilet facilities shall be provided in accordance with the following standards:

2. **APARTMENTS:**

(a) *Location.*—All toilet facilities shall be located conveniently to and easily accessible from all places where persons are employed.

(b) *Separation.*—Toilet rooms for each sex shall be maintained separate and apart from each other and from all workrooms and passageways. Such rooms shall be marked so as to designate plainly and distinctly the sex for whose use they are intended.

(c) *Screening.*—If the water-closet is not located within a separate screened compartment in the toilet room, the entrance to all toilet rooms shall be provided with a screen to insure privacy. This screen shall be at least 6 feet in height, and shall extend to within at least 4 inches of the floor, and, if the space permits, shall be not less than 2 feet wider than the door leading into such toilet room.

(d) *Distance.*—All toilet rooms not having sewer connections and maintained outside of buildings where people are employed shall, on new installations, be at least 25 feet from such buildings; and in all factories where the workers are exposed to excessive heat, humidity, or fatigue from physical exertion, there shall be a covered passageway connecting said building with toilet or toilets.

(e) *Construction.*—The outside partitions of all toilet rooms shall be of solid construction, and may be opaque or translucent but not transparent, and shall extend from floor to ceiling, or such rooms shall be independently ceiled over. All partitions separating toilet rooms provided for the different sexes shall be at least 2 inches in thickness and constructed of such materials as are not transparent or translucent, and they shall be sound proof, and no openings in such partitions shall be permitted.

(f) *Floors.*—The floors of all toilet rooms shall be tight, smooth, and constructed of a substance that shall be impervious to moisture.

(g) *Walls.*—The walls of all toilet rooms shall be tight and of a substance that can be readily cleaned and kept clean.

(h) *Ceilings.*—In those toilet rooms which have ceilings, the ceilings shall be tight and of such substance that they can be readily cleaned and kept clean.

(i) *Light.*—All toilet rooms and water-closet compartments shall be adequately illumined by natural or artificial light.

(j) *Ventilation.*—All toilet rooms not lighted by windows that open easily shall be adequately ventilated to the outside air by artificial means. Every water-closet compartment entirely separated from

the remainder of the toilet room by partitions extending from the floor to the ceiling, and not provided with a window opening easily, shall be adequately ventilated to the outside air by artificial means.

On new installations every toilet room or every water-closet or urinal compartment shall have a window opening directly to the outdoor air. No such window shall be less than 1 foot wide, nor have an area of less than 6 square feet, measured between stop heads, for one water-closet or urinal. For every additional such fixture the area of such window shall be increased at least 1 square foot. A skylight shall be deemed the equivalent of a window, provided that it has fixed or movable louvres with openings of the net openable area prescribed for such window.

Every such window shall open upon a street or upon a yard or open space, uncovered at the top, which in its least horizontal dimension shall be at least one-tenth the height of the highest abutting wall, but in no case less than 6 feet.

(k) *Heating*.—All toilet rooms and, wherever practicable, water-closet compartments shall be adequately heated at all times.

(l) *Cleanliness*.—The occupier shall be responsible for the maintenance of all toilet rooms or water-closet compartments in a clean and sanitary condition.

(m) *Entrances*.—All toilet facilities shall be adequately protected to prevent the entrance and breeding of flies as far as practicable.

12. Fixtures.

(a) *Kind*.—The use of any form of trough water-closet or latrine, or school sink, is prohibited. Individual closets shall be provided. The bowls of the water-closets shall be of smooth, impervious material. Pan, plunger, washout, faucet, and long hopper closets are not permissible. The seat shall be finished with a smooth, impervious waterproof substance. Types of chemical closets, or other closets which are approved by the properly constituted authorities, shall be permitted.

(b) *Connections*.—The disposal of all contents of toilets and urinals shall be in accordance with the laws, rules, and regulations of the properly constituted authorities of the locality in which they exist. Provision shall be made for the adequate flushing of every water-closet.

Privies shall be permitted only in cases outside of the sewer zone and where cesspool, septic tank, or chemical closets or other closets which are approved by the properly constituted authorities are not practicable. Privies not connected with the sewerage system shall be built in accordance with the standards recommended by the properly constituted authorities.

(c) *Number and ratio.*—When there are 100 or less persons on a shift there shall be one toilet¹ for every 20² persons; when there are 100 to 500 persons on a shift, there shall be one toilet for every 30 persons; when there are 500 to 1,000 persons on a shift, there shall be one toilet for every 35 persons; and when there are 1,000 to 5,000 persons on a shift there shall be one toilet for every 40 persons.

13. Urinals.

(a) *Kind.*—Urinals shall be either individual urinals or slab urinals. At least 2 feet of slab urinal shall be considered the equivalent of one individual urinal.³

(b) *Construction.*—All urinals shall be composed of smooth material, impervious to moisture.

(c) *Connections.*—All urinals shall be connected by means of waste pipes to sewers or cesspools, which sewers or cesspools shall be constructed in accordance with the laws, rules, and regulations of the properly constituted authorities of the locality in which they exist.

Unless water runs continuously over the walls of a urinal, each urinal shall be provided, wherever practicable, with an adequate water flush. When individual tanks are used, the flushing shall be accomplished by pedal action or, if water flush is impracticable, then with other proper means for cleanliness and safety.

(d) *Number and ratio.*—One urinal or its equivalent shall be provided for every 50 men on a shift.

(e) *Entrances.*—All urinals shall be adequately protected to prevent the entrance and breeding of flies as far as practicable.

14. Medical Supervision.

Medical supervision is required in all factories where poisonous nitro or amido compounds are manufactured or handled. A physician shall be within easy access in case of accident. A physician shall be employed to attend cases of occupational poisoning, and to look for early symptoms of the same among the workers. He shall be required to make frequent trips through those parts of the works where poisonous, nitro, or amido compounds are present, and to request the factory manager or superintendent to suspend from work or shift to other work all whom he suspects to be poisoned even slightly. These workers shall not be allowed to return to their former occupations except on recommendation of the physician.

There must be kept for use in emergency a supply of aromatic spirits of ammonia, consisting of 1 pint of said spirits for each 200 employees on a shift, and there shall be provided one set of oxygen

¹ Closet.

² In practice it has been found advantageous to provide 1 closet for every 15 persons.

³ In practice it is recognized that separate urinals should be arranged throughout the work places convenient to the points where the men work.

tanks¹ with the apparatus for administering oxygen in each dispensary or hospital on the plant, and there shall be at least one set of tanks for every 500 employees on a shift.

In all cases in which oxygen is used a physician shall at once be called or the sick employee removed to a hospital.

If there is no hospital within easy access, a hospital room shall be provided in the works, which shall contain the following articles: A couch or bed, pair of blankets, two hot-water bottles, a supply of hot water, and such surgical dressings as are needed for minor injuries, and a stretcher.

For every 50 process workers or less employed in such plant and exposed to such risk there shall be present at all times at least two persons who are trained or competent to apply means of resuscitation by the prone pressure or Schaeffer method, or by mechanical devices approved by the properly constituted authorities.

A sufficient number of helmets of a type approved by the properly constituted authorities shall be kept at each plant, in order that they may be available for use by every employee who has occasion to enter places where there may be asphyxiating or poisonous gases, fumes, or vapors.

All employees who are required by the employer to wear helmets in making repairs or in maintenance work shall be thoroughly instructed in the use of such apparatus and be physically examined by a licensed physician at least once in 90 days or after absence from work due to either sickness or accident, and the physician shall certify to the proper physical condition of the men so employed, either in a book or upon a card, and no employee shall be permitted to do such repair work unless so examined and certified.

15. Physical Examination.

All workers employed as process men in manufacturing or handling poisonous nitro or amido compounds shall be physically examined by a licensed physician before the expiration of 24 hours after their employment.

All process workers shall be physically reexamined by a licensed physician at least once in every 30 days and before resuming work after an absence due to sickness or to accident.

In those cases where the examining physician believes the worker to be poisoned, the examination shall consist in the determination and recording of the following facts either in a book or upon a card:

Name.....	Age.....
Address.....	Process.....
Height.....	Weight.....
Pulse.....	Blood Pressure.....
Examination of urine.....	Reaction.....
Albumen.....	Sugar.....
	Hæmoglobin.....
	Specific gravity.....
	Casts.....

¹ One set of oxygen tanks shall be interpreted to mean two tanks of oxygen, one of which shall be quite full.

The record of these examinations shall at all times be open for inspection by the properly constituted authorities.

The examining physician shall report all cases of poisoning to the properly constituted authorities within 48 hours after such examination, upon blanks which will be furnished upon request.

The following shall not be employed in any establishment handling, manufacturing or otherwise using any poisonous nitro or amido compounds:

- (a) Persons under 18 years of age.
- (b) Persons suffering from any form of inflammation of the bladder.
- (c) Persons whom the factory manager or superintendent knows to be addicted to the excessive use of alcohol in any form, or who are under the influence of intoxicants or narcotics.
- (d) Persons suffering from any form of anemia.

16. Education.

Information must be given to these workers in a language they can understand and also by word of mouth. The properly constituted authorities shall prepare and distribute, free of charge, such educational literature. They shall be taught the dangers inherent in the work and the proper methods of protecting themselves.

17. Hours of Labor.

The day's work should not exceed the customary hours in the establishment or the standard already attained in the industry and in the community. It should certainly not be longer than 10 hours for an adult workman.

The drift in the industrial world is toward an 8-hour day as an efficiency measure.

It has also been shown that hours of labor must be adapted to the age and sex of the worker, and the nature of the occupation.¹

18. Fulminate of Mercury.

In making fulminate of mercury, care must be taken not to spill the mercury. In case of such an accident, the globules must be collected at once.

The formation of fulminate of mercuric nitrate by the action of alcohol must either be carried on in the open air, or, if carried on in inclosed buildings, there shall be provided suitable exhausts to catch and remove the fumes.

¹ From General Orders No. 13—Office of the Chief of Ordnance, Washington, D. C., Nov. 15, 1917.

Recent Government orders have required spurts of overtime, due to a demand from abroad for products within a period so short that they could not have been turned out otherwise. One was limited to three days. This indicates the desirability of qualifying these regulations so that upon the request of the Council of National Defense overtime may be permitted for a temporary period if in the interest of national defense.

19. Repairs and Cleaning.

All repairs or changes on machinery, stills, and pipes for poisonous nitro or amido compounds and for the mineral acids shall be made under the following procedure:

If it is necessary for the employee to enter any vat, tank, or other container in which there have been used, stored, or manufactured liquids or solids which give off vapors of a poisonous nature disconnect and blank off all connections. Clean containers thoroughly by repeated washings with water, soda water, steam, compressed air, or other suitable means. If the person in charge then considers conditions satisfactory, employees may enter such container. They must use an approved type of helmet and have attached to their bodies a life line or rope, if the person in charge considers it necessary.

The life line or rope shall be under the control of one or more fellow workmen, who shall remain outside of the container in order that they may render assistance if necessary.

After the work is finished the men should take at once a bath and change their clothing, including shoes, if the foreman or other person in charge shall deem it necessary. Facilities for taking such baths shall be provided.

The superintendent of the plant shall be held responsible for the enforcement of these regulations.

Whenever it is necessary to disconnect any pipe containing acid or any poisonous nitro or amido compound, or other poisonous compound or fluid, care shall be taken to see that all pipes are drained of their contents and that the valves controlling the said pipes are closed.

20. Cotton Nitration Plants.

Ventilation.—Where injurious vapors are produced in such amounts as to be deemed a menace to the safety and health of employees working in such buildings, sufficient ventilation for the health of the occupants shall be provided.

Shower baths or similar devices for supplying an abundance of water immediately shall be placed in easy access of nitrator operators.

The rooms in which nitrating and acid wringing is carried on shall have exits to the outer air, easily accessible from all parts of the room.

An acid accident cabinet containing equipment for the treatment of acid burns, or of the so-called fume sickness, shall be kept in places quickly reached in case of need. It is suggested that this cabinet should contain the following articles:

- 1 quart sodium bicarbonate solution.
- $\frac{1}{2}$ pint aromatic spirits of ammonia.
- 4 ounces 3 per cent alcoholic iodine solution.
- 2 drams 5 per cent cocaine solution.
- 1 dozen 15-minim ampules of chloroform, or

- 1 ounce chloroform, if not in ampules.
- 1 tube of about 2 ounces ointment of sodium bicarbonate and petrolatum.
- 1 pint carbolized oil—1—20.
- 1 dozen 2-inch gauze bandages in sterile packages.
- 1 dozen 4-inch gauze bandages in sterile packages.
- $\frac{1}{4}$ pound absorbent cotton.
- 1 roll $\frac{1}{2}$ -inch adhesive plaster.

Proportionate number.—There shall be at least one of these acid accident cabinets or boxes for every 100 men or less in each of the acid buildings, or in suitable locations in the acid area outside of buildings.

Medical care shall be readily available and hospital care shall be provided either inside or outside the works. Employees known to be suffering from the effects of fumes shall not leave the works until permitted to do so by the works physician.

21. Picric Acid.

The regulations given in the previous pages apply to factories manufacturing or handling picric acid.

All workers shall be cautioned that they shall take care not to produce excessive dust in emptying the drying houses and in packing or otherwise handling picric acid. These workers shall be protected against dust so far as practicable.

22. Poisonous Nitro or Amido Aromatic Compounds.

Floors must be nonabsorbent for the substances produced or handled in each room, smooth and easy to clean. All apparatus for melting, distilling, reducing, etc., shall be so constructed as to prevent the continuous escape of vapors under ordinary conditions into the breathing atmosphere.

The work shall be regulated in such a way that the men do not come into direct physical contact with poisonous nitro or amido compounds. All such compounds as are liquid shall be kept and stored only in covered vessels. Wherever it is necessary to handle these liquids uncovered, as in filling receptacles, exhausts shall be provided wherever practicable, to carry off the fumes. In powdering, sifting, and packing operations in connection with solid compounds, the work shall be carried on as far as practicable in covered or closed apparatus.

There shall be such a separation of processes in different rooms that dust or fumes arising from one operation shall not involve process workers engaged on other processes.

The process workers shall be kept as free from poisonous nitro or amido compounds as possible, and if any material is spilled on the floor, it shall be removed as soon as possible. The floor shall be cleaned at least once every 24 hours.

On all new construction all platforms shall be so erected as not to interfere with ventilation.

It is recommended on all new construction that platforms be erected so that there shall remain a free space at least equal in surface to a quarter of the floor space of the building. (It is recommended to leave between platforms and outer walls either a free space or a space covered by slats 2 or 3 feet wide, and the area of this space is to be added to the free space in calculating the latter.) The distance of the larger platforms from the floor and from each other shall be 10 feet, as far as possible and practicable. For smaller platforms a smaller distance is permitted, provided that it does not interfere with the ventilation of the building.

On top of melting kettles and distilling apparatus, such platforms only shall be built as are absolutely necessary for the proper handling of the apparatus, and care should be taken that all apparatus be so constructed that vapors and gases can not escape and thereby injure those obliged by reason of their duties to be upon said platforms.

Platforms on which work is regularly carried on with poisonous nitro or amido compounds shall be tight and easy to clean; covered with sheet lead where advisable and practicable.

In case of accident, when any part of a process worker's clothing has become saturated with poisonous nitro or amido compounds, so that it has come in contact with the skin, the clothing shall be removed immediately, the skin thoroughly washed, and fresh clothing put on.

It is recommended that all process workers take a bath before leaving the works, and the importance of bodily cleanliness shall be emphasized by the factory manager or superintendent to the process workers, who shall also be cautioned against working with an empty stomach and also against the danger of drinking any alcoholic liquors or the taking of narcotics.

23. Loading of Ammunition.

Every vessel containing TNT heated to the melting point shall be covered in such a way, and the pressure therein maintained in such a manner, that no vapor or dust may escape into the air of the room in significant amounts when TNT is poured in.

When charges are to be molded, the molten TNT shall be drawn from the melting pot under a hood provided with an exhaust. Stirring shall be done automatically and under a hood provided with an exhaust.

All workers shall be cautioned that pouring molten TNT into buckets for the molders shall be done with care so that none is spilled on the floor.

The filling of shells shall be done in such a way that the outer surface is protected so far as possible and practicable, that no molten TNT runs down over it, necessitating subsequent cleaning. The neck of the shell shall be protected for the same reason whenever the nature of the work permits.

The boring, planing, drilling, crushing, or grinding machines shall be protected with dust-proof shields or suction ventilators. The work of boring, planing, etc., shall be done in a room separate from any in which other work is performed.

Cleaning and shellacking the bore of the charge shall be done under a hood with an approved type of exhaust. This cleaning shall be done by suction and when loosening is necessary the brushing shall be done by suction.

Imperfectly loaded shells shall be emptied by heating them enough to loosen the charge and not by boring down the charge and then blowing it out in dust form. This operation of melting down the charge shall be conducted under an approved type of exhaust.

If charges be pressed, the pressing shall be done in a separate room where no other process work is performed.

Scales and presses shall be kept as free from dust as practicable.

The use of respirators for workers in TNT is not advised, except when in an emergency a worker is unavoidably exposed to dust a pad of clean cheesecloth should be tied over the face.

Bodily cleanliness is of the utmost importance in TNT work, and all working clothes, socks, shoes, and gloves must be in good repair, well closed. If gloves are not dustproof, they will be worse than none at all, since they will serve to keep the skin of the hands in contact all the time with the TNT that has worked through, and by increasing perspiration will increase skin absorption.

Every worker engaged in melting, casting, pressing, boring, trimming, cleaning, or planing charges shall take a shower bath at the end of his shift of work.

Information shall be given to the workers in TNT in a language that they can understand to the effect that the drinking of milk in abundant quantities will help them to conserve their health.